REMARKS

Claims 1-4, 6-7, 9-15 and 17-20 are currently pending. Support for the amendment to claim 1 may be found in the specification as originally filed, for example, paragraph [0177] (Page 47, line 6 to 9). In view of the amendment to claim 1 claim 18 is cancelled.

I. Clarification of Office Action

The Examiner cited Kume et al "U.S. Patent 5,249,071" and Aida et al "U.S. Patent Publication 2003/0164920" in the rejections. During a brief interview, the Examiner confirmed that the rejections are based on Kume et al U.S. Patent Publication 2002/0231270 and Aida et al U.S. Patent 5,093,739.

During the brief interview, the Examiner also confirmed that she issued all new rejections as discussed on pages 3-11 of the Office Action. Thus, the Examiner's statement "The claim language therefore does not patentably distinguish over the applied reference[s], and the previous rejections are maintained" on page 2, paragraph #2, last line, is in error.

II. The Objection to the Specification

The Examiner objects to the title of the invention. Specifically, the Examiner states that the title of the invention is not descriptive. The title of the invention is amended for clarity to read "Birefringent optical film, Laminated polarizing plate, Liquid crystal display and Image display".

Applicants respectfully submit that the title of the invention is descriptive and complies with 37 C.F.R. §1. 72(a) and requests that the objection to the title be reconsidered and withdrawn.

III. The Objection to Claim 16

Claim 16 is objected to as allegedly containing "informalities." Claim 16 is deleted. Therefore, the objection to claim 16 is moot.

IV. The Rejection Based on Kume et al. in view of Aida et al. and further in view of Kim et al.

Claims 1 3, 6-7, 10-13, 15-16, and 18 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071) in view of Aida et al. (US 200310164920), further in view of Kim et al. (US 2006/0098145).

Applicants respectfully submit that the present invention is not rendered obvious over the disclosures of Kume et al et al in combination with Aida et al and Kim et al and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Claim 1 is amended to recite that "the birefringent optical film is used for viewing-angle compensating films for VA mode liquid crystal displays".

None of the references cited in the office action discloses the VA mode. Specifically, Kim et al does not particularly limit the display type of LCD, and, although other references describe the viewing-angle compensation for liquid crystal displays of, for example, a TN mode and a STN mode, they neither describe nor provide any reason for the VA mode.

The Examiner alleges that "Kume et al. discloses the birefringent optical film is used for viewing-angle compensating films for a VA mode liquid crystal display (see at least paragraph 0086)" (paragraph 18 in Office Action). However, Applicants respectfully submit that Kume does not disclose the VA mode liquid crystal display. That is, Kume describes, in the paragraph 0086, that "For example, when a voltage is applied to a liquid crystal layer, not all of the liquid

crystal molecules thereof are aligned exactly vertically but some of them are aligned so as to define some tilt angle with respect to the vertical direction." This description indicates that when a voltage is applied to a LCD cell, most of the liquid crystal molecules are aligned vertically, and some of them tilt slightly from the vertical direction. However, the VA mode denotes a drive mode in which when a voltage is not applied to the LCD cell, liquid crystal molecules are aligned vertically and do not transmit the light (black display), while when a voltage is applied, the liquid crystal molecules tilt and thereby light undergoes birefringence to pass therethrough (white display). A specific example of this is described in the attached reference material (http://www.meko.co.uk/multivertalign.shtml). The description in paragraph 0086 of Kume is directed to a so-called TN mode, which is different from the VA mode.

Accordingly, it is respectfully submitted that the Examiner's allegation that Kume discloses the VA mode is not correct. Furthermore, the other references also neither describe nor provide any reason for the VA mode as described above.

Further, the invention according to claim 1 of this application unexpectedly provides an excellent effect that the VA mode liquid crystal display is excellent in viewing-angle compensation, which effect is neither described nor suggested in any references. This effect has been proved by the examples of this application.

As set forth above, Applicants' invention according to claim 1 not obvious from the cited references.

Furthermore, Applicants respectfully submit that the present invention is allowable for the following additional reasons. The Examiner states that:

> In addition, Kim et al. (in at least paragraphs 0010 and 0013; figure 1A) discloses an in-plane retardation of the birefringent optical film (601 or 602) has reciprocal wavelength dispersion characteristics. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the birefringent optical film of the combination of Kim et al./Aida et al. with the biaxial plate of Kim et al. because such modification would secure the wide viewing angle and minimize the blue shift of a liquid crystal display device (see at least paragraph 0037)

Office Action, paragraph 8.

Applicants respectfully submit that this conclusion is also not appropriate. In the invention according to claim 1 of this application, the whole birefringent optical film including a laminate formed of a birefringent A-layer and a birefringent B-layer that are different in birefringence distribution from each other, has reciprocal wavelength dispersion characteristics. This can be achieved by, for example, a smaller change A in wavelength dispersion characteristics of the absolute value of the in-plane retardation Δnd_a of the birefringent A-layer as compared to the change B in wavelength dispersion characteristics of the absolute value of the in-plane retardation Δnd_b of the birefringent B-layer (Applicants' specification, paragraphs [0099] and [0100] as well as Fig. 1 and Fig. 2). In other words, in the invention according to claim 1 of this

application, the whole birefringent optical film has reciprocal wavelength dispersion characteristics, which however, is not identical to that each of the birefringent A-layer and the birefringent B-layer having the reciprocal wavelength dispersion characteristics. This fact can be understood by, for example, Fig. 1 and Fig. 2 of this application.

On the other hand, Kim describes that positive or negative a-plate compensation films 601 and 602 individually exhibit the reciprocal wavelength dispersion characteristics. However, Kim neither describes nor suggests the wavelength dispersion characteristics that are obtained when the compensation film and another compensation film, for example, a negative hybrid c-plate compensation film 701 or 702 are laminated together. Moreover, the cited references also neither describe nor suggest that the combination of a compensation film of Kim and an optical compensation layer of Kume or Aida allows the reciprocal wavelength dispersion characteristics to be exhibited.

Accordingly, the birefringent optical film according to claim 1 of this application having reciprocal wavelength dispersion characteristics would not have been obvious from the combination of the cited references.

In addition, as is argued in Applicants' response to the previous Office Action, the birefringent optical film of the present invention has reciprocal wavelength dispersion characteristics, so that an unexpected and advantageous effect that display coloring can further be prevented (Applicants' specification, paragraph [0099] (lines 25 to 29, page 23)). Such an excellent effect is neither suggested nor disclosed in any references cited in the Office Action.

As described above, the invention according to claim 1 of this application has distinctive and patentable constituent features that are neither described nor suggested in the cited references and provides an unexpected and excellent effect that is neither described nor suggested in any references. Thus, it is respectfully submitted that the subject matter of claims 1 3, 6-7, 10-13, and 15 are is neither taught by nor made obvious from the disclosures of Kume et al et al in combination with Aida et al and Kim et al and it is requested that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

V. The Rejections Based on Kume et al., Aida et al., and Kim et al., further in view of Sakamoto et al, Kuwabara et al. Kaneko et al, Van De Witte et al or VanderPloeg et al

Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071), Aida et al. (US 2003/0164920), and Kim et al. (US 2006/0098145) further in view of Sakamoto et al. (U.S. 2003/0125503).

Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071), Aida et al. (US 2003/0164920), and Kim et al. (US 2006/0098145), further in view of Kuwabara et al. (5,875,014).

Claim 9 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071), Aida et al. (US 2003/0164920), and Kim et al. (US 2006/0098145), further in view of Kaneko et al. (U.S. Patent Number 6,693,692).

Claim 19 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071), Aida et al. (US 2003/0164920), and Kim et al. (US 2006/0098145), further in view of Van De Witte et al. (US 6,437,843).

Claim 20 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kume et al. (US 5,249,071), Aida et al. (US 2003/0164920), and Kim et al. (US 2006/0098145), further in view of VanderPloeg et al. (US 6,567,143).

The secondary references do not overcome the deficiencies in the primary references as set forth in Section V above. Therefore, it is respectfully requested that the rejections further in view of the secondary references be reconsidered and withdrawn.

VI. Conclusion

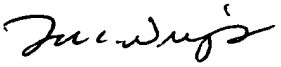
In view of the above, Applicants respectfully submit that their claimed invention is allowable and ask that the objections to the title and the claim and the rejections under 35 U.S.C. §103 be reconsidered and withdrawn. Applicants respectfully submit that this case is in condition for allowance and allowance is respectfully solicited.

If any points remain at issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local exchange number listed below.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Lee C. Wright
Attorney for Applicants
Registration No. 41,441
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

LCW/af
Attachment: http://www.meko.co.uk/multivertalign.shtml

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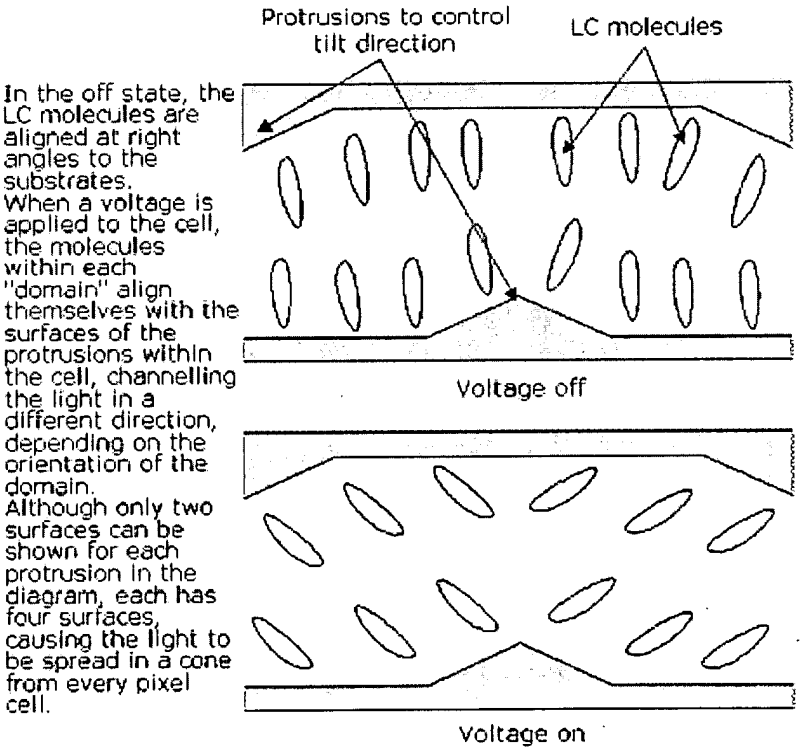
While Hitachi was developing its In-Plane Switching (IPS) Super TFT, Fujitsu and the chemical giant Merck were taking a different approach to increasing viewing angles and, in 1996, announced the development of a new liquid crystal mode, known as Vertical Alignment (VA). In VA, as the name suggests, the molecules of liquid crystal are normally aligned at right angles to the substrates, swinging through 90° to lie parallel with the substrates in the presence of an electromagnetic field. This new mode produces a display which, like Hitachi's, has an ultra-wide viewing angle (140° in all directions) and high contrast but with the added bonus of higher brightness and a response time of 25 milliseconds, shorter than for IPS and STN LCDs. The display also consumes less power than IPS but, is still too power hungry for battery-power applications.



Multi-Domain Vertical Alignment LCD Cells

The following year, 1997, Fujitsu used the VA mode LC in conjunction with a technique of aligning crystals at a sub-pixel level which uses UV light instead of the more usual rubbing. Developed by Rolic, and first used in a display by NEC, the technique involves the addition of pyramid-shaped protrusions within each LC cell, the surfaces of which each make up a separate "domain" in which the LCs are aligned differently from those in the other domains. It produces increased viewing angles, at the expense of a reduction in brightness, by ensuring that each of the multiple domains within a pixel cell channel light at an angle to

Road
Camberley
Surrey GU15 1EJ
UK

Tel: +44 (0)1276 22677

Fax: +44 (0)1276 64004
E-mail:
websales@meko.co.uk

the substrates, instead of at right angles to it. The result is an all-round increase in viewing angle with no variation in colour tone as the viewing angle increases and, requiring no rubbing, a simplified manufacturing process with a reduction in the possibility of LC contamination. When combined with the VA LC mode, the resultant display is known as a Multi-Domain Vertical Alignment (MVA) TFT LCD and produces a viewing angle of 160° in all directions with a high contrast ratio of around 300:1.

Both VA and multi-domain LCs have since been developed by other companies. LG, for example, has adopted both, using the VA mode in conjunction with IPS in its HS LCD and also producing a multi-domain display, although its version does not use the pyramid-shaped protrusions, creating the multiple-domains directly onto the flat substrate instead.

Update: Samsung's LCD business is now (July 2006) the largest supplier of vertically aligned LCDs although it has a variation called Patterned Vertical Alignment. Sharp, AUO and CMO also make VA technology LCDs and that makes it the dominant LCD technology in screens of over 20" and for TV and monitor applications.

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